

NOAA FISHERIES

Aquaculture of Sablefish off the U.S. West Coast

*Below: Technicians perform an ultrasound on sablefish while wearing headlamps with red lights, since the fish typically live in dark waters from 1,000–3,000 feet below the surface.
Photo credit: NOAA Fisheries.*



Background

Sablefish (also known as black cod or butterfish) are a deepwater species native to the Pacific Northwest. They are a tasty source of protein, rich in omega-3 fatty acids, and fetch a high price in local markets.

Wild sablefish populations are currently stable, and harvest is not expected to increase. As a result, the wild product is limited, which creates a strong interest in the aquaculture of this species.



Sablefish fingerlings in a holding tank at NOAA's Manchester Research Station. Photo credit: NOAA Fisheries.

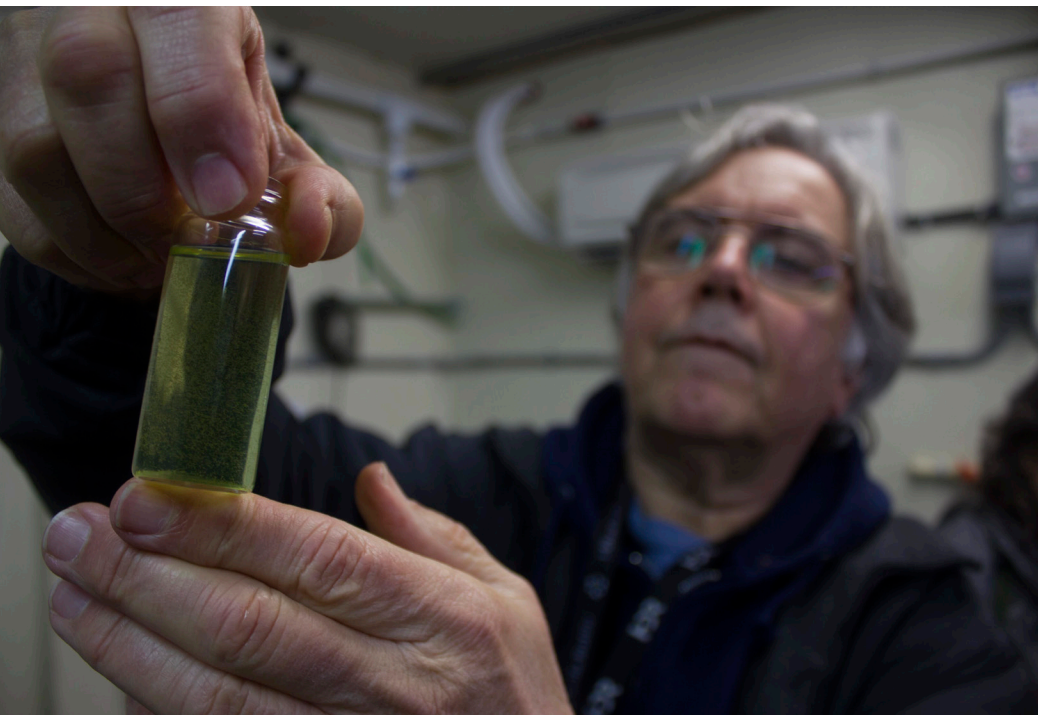
NOAA Scientists Help Streamline Sablefish Production

Aquaculture of sablefish is relatively new. Until now, several challenges prevented U.S. growers from fully committing to grow sablefish in aquaculture operations, including the development of captive broodstocks and the high cost and duration of larval rearing.

Through a NOAA National Sea Grant to the University of Washington, NOAA scientists partnered with tribes, academia, and industry to address these challenges by developing and transferring research technologies to the commercial production of sablefish.

For example, over the past 5 years, researchers at NOAA's Manchester Research Station have been developing captive broodstocks and have also made significant advances in larval rearing techniques and in streamlining this costly phase. These improvements have included research on tank design, elevated temperatures to shorten the larval rearing phase, and the substitution of inexpensive alternatives to algae (such as clay) for producing opacity in rearing water during the live-feed period.

In addition, NOAA researchers have developed techniques to produce sablefish neomales (XX males) that can be used to make all-female stocks, and are currently producing approximately 10,000 all-female fingerlings per year to be reared to commercial harvest in net pens. Since sablefish females grow significantly faster than males, the ability to produce all-female product is a significant commercial advantage for aquaculture.



Rick Goetz, NOAA supervisory research physiologist, takes a look at some of the zooplankton grown at the Manchester Research Station for the sablefish program. Photo credit: Tiffany Royal/Northwest Indian Fisheries Commission.

Future Research

The technologies developed so far can significantly streamline the production of sablefish from the egg to fingerling stages. However, the growout of sablefish is currently absent in the U.S. In Puget Sound, available net pen sites have been monopolized with the growout of a non-native species, and new commercial net pens for rearing finfish have not been approved in Washington State for many decades (due largely to a complex and costly regulatory permit-approval process).

Future research endeavors could help establish a commercial net pen growout industry for sablefish by tribes in the Puget Sound region. NOAA scientists are partnering with the Jamestown S'Klallam Tribe to transfer their knowledge and provide an initial net pen platform at the NOAA Manchester Research Station. The goal is for the tribe to grow sablefish to harvest at the Manchester site. The knowledge and profits derived from the sale of these fish could then be used by the tribe to establish a viable aquaculture business at other sites in the Pacific Northwest.

Collaborators

- NOAA's Manchester Research Station
- University of Washington
- Troutlodge Sablefish
- Jamestown S'Klallam Tribe



Net pens at the NOAA Manchester Research Station for sablefish aquaculture. Photo credit: NOAA Fisheries.

Learn more:

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